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ABSTRACT

The California Community Colleges (CCC) are facing a number of challenges, including the explosive use of the Internet, the digital divide, the need for integrating technology into teaching and learning, the impact of Tidal Wave II, and the need to ensure that technology is accessible to persons with disabilities. The CCCs' Technology II Strategic Plan (Tech II) focuses on two major goals: student access to instruction and student support services, and student success in their educational and career goals. The access objective for Tech II is to establish a baseline of access to computers for students, faculty, and staff that includes a technology replacement program for computers and related equipment at all colleges. The Chancellor's Office has given each college $25,000 and each funded district $9,700 in Telecommunications and Technology Infrastructure Program (TTIP) funding to be applied toward Tech II planning. This paper offers a Total Cost of Ownership (TCO) model, which estimates a cost of $3,506 per PC at each community college. TCO includes support and infrastructure expenses. This report puts the minimum baseline standard for student-accessible PCs at one per every 20 FTES. This report includes an Expenditure Plan Total Cost of Ownership worksheet. Definitions for Tech II model are appended. (Author/NB)

STATE OF CALIFORNIA

CALIFORNIA COMMUNITY COLLEGES
CHANCELLOR'S OFFICE
1102 Q STREET
SACRAMENTO, CA 95814-6511
(916) 445-8752
HTTP://WWW.CCCCO.EDU

TECHNOLOGY II

Implementation Planning Guide

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TECHNOLOGY II Implementation Planning

Background:

Technology II Strategic Plan

The California Community Colleges face compelling challenges in serving the students of today:

- the explosive use of the Internet as a required occupational and citizenship skill;
- the Digital Divide;
- the necessity for integration of the new technology into teaching and learning;
- the impact of *Tidal Wave II* on demand for college access; and;
- ensuring that technology is accessible to persons with disabilities.

The vision for the use of technology is that the California Community Colleges will use it to enable students and communities to be successful in a knowledge-based society by providing universal access to quality learning.

The Technology II Strategic Plan focuses on two major goals:

- **Student Access** — *Promote student access to the California Community Colleges including access to instruction and student support services.*

  Students will be able to progress into and through the college experience more readily with the assistance of information technology. Students will utilize technology for on-line access to college admissions, support services, faculty, classes, and libraries, in a manner that is fully accessible for all students, including students with disabilities. Emerging technologies and learning practices extend and expand opportunities to meet the educational needs of unserved and underserved populations. Faculty will be better able to integrate technology into instruction to provide alternate educational access to students through distance learning.

- **Student Success** — *Promote students' success in their educational and career goals.*

Students, faculty, staff and administration will be able to utilize state-of-the-art technology to facilitate their communication in classrooms, labs, libraries, learning resource centers, offices, and the workplace and/or the home. Necessary up-to-date adaptive equipment and software will be widely available throughout the college. Faculty will use technology creatively to improve the quality of instruction. They will empower students by permitting greater access to information, and by increasing the variety of learning options. Faculty will be supported by qualified technical staff and training to assist them in promoting student success.

Technology II Strategic Plan Access Objective:

Establish a baseline of access to computers for students and faculty and staff that serve them that includes a technology replacement program for computers and related equipment at all colleges.

Strategy: Establish and support a baseline of technology infrastructure at every college that will ensure that students, full-time and part-time faculty, and support staff have access to computers and related equipment. Establish a target baseline for replacement such that computers are no more than three years old. Appendix C describes the baseline models for PCs for faculty, staff, and students. The models are based on the standards and components recommended in the GartnerGroup Report, CCC Technology II Plan Recommended Strategy, December 13, 1999.

Planning

"Plans are worthless, but planning is everything."
President Dwight Eisenhower, November 17, 1957

To realize the benefits of technology, schools must develop a plan for integrating technology into the curriculum. To ensure that technology is effectively integrated into the schools, educators and community members must collaborate to create a formal technology plan. Developing a plan for using technology to support education reform means more than providing for the acquisition of computers and software. To be successful, a technology plan must promote meaningful learning and collaboration, provide for the needed professional development and support, and respond flexibly to change.

These guidelines are intended to assist the districts and colleges in their planning efforts as they begin to implement the Technology II Strategic Plan. In order for the implementation process to be successful, it is imperative that ample focus and attention be devoted to the planning phase of the Technology II implementation process. The Technology II Project will require significant

consideration to the changes involved to the current level of operations and student services.

Strategic Planning is approached from a higher or administrative level and primarily focuses on the broader vision or goals of a project. It incorporates systems that are designed to effectively and efficiently manage, administer, and monitor the project to ensure that the project's outcomes and general direction is in accordance with its objectives and, simultaneously, the vision or mission of the organization.

Current Planning, sometimes called tactical or short-range planning, acquires the necessary services, equipment and staff to execute long-range or strategic plans. Contrasted to strategic plans, which are futuristic, and goal-oriented, current plans are results and action oriented. Briefly put the aim of current planning is to provide the capacity needed to support the current operations.

Things to consider when developing a short-range *(current or tactical planning)* implementation plan are resources required i.e.; materials, equipment, personnel, initial costs, and necessary training and support for successful implementation of the Technology II Project. Another important component to planning is looking at the long-term goals or a longer range view and direction (*strategic planning*) of the Technology II Project.

The Technology II Project is a component of the general technology and/or education plan at all colleges. It is imperative that, in order for the goals of the general technology or education plan of the college be met, all objectives of the components to the plan be achieved. Ensuring that a successful implementation of Technology II occurs, a well designed and well-planned implementation plan needs to exist. Effective implementation planning is the key to ensuring the initial and continued success of the Technology II Project.

The Chancellor's Office has given each college $25,000 and each funded district $9,700 in Telecommunications and Technology Infrastructure Program (TTIP) funding to be applied toward Technology II Planning. These funds are to assist you and your staff in gathering information, conducting research, and other various activities necessary for the development and implementation of a comprehensive Technology II Implementation Plan.

Module 1: Total Cost of Ownership (TCO)

Overview: When educational institutions acquire computer hardware/software, they do so without factoring in the costs to support the equipment and infrastructure. As a result, there is often a lack of support to maintain, repair, improve performance of the equipment, as well as a lack of staff for training faculty, staff, and students. This creates delays and inefficient use. The TCO funding concept assumes a relationship between computer hardware/software and support. It is a method of determining the full cost associated with owning and using computers in an educational environment.

Background: Since 1987, GartnerGroup has counseled enterprises to consider all costs associated with computing when making management decisions about desktop and LAN acquisitions, upgrades, support and administration. During this time, GartnerGroup has created and evangelized the concept of TCO to the IT community. As enterprises have begun to address the significant and rising costs devoted to their IT infrastructure, the message has gained wide acceptance among IT users. As technology suppliers seek ways of differentiating themselves meaningfully, they too have turned to the TCO model as a means of underscoring their value to the customer.

Used as a management tool as part of an enterprise's annual planning process, the TCO model can become part of a continuous process of measurement, simulation and improvement. Because budget decisions are ultimately based on a set of strategic IT goals, most enterprises must be able to determine various levels of TCO based on the decision being made. By using the TCO model, enterprises can:

- Translate IT cost, staff, budget and other metric information into a TCO "chart of accounts" for each organization.

- Compare the enterprise's actual TCO to typical TCO-based external comparative data. The typical TCO reflects the enterprise's unique business type, size, worldwide location, assets, technology and complexity against other enterprises doing similar levels of work.

- Audit the results to highlight strengths and weaknesses in the enterprise's actual TCO.

- Create a proposed environment or target TCO based on improvements to assets and changes to technology and complexity, and compare the target TCO with the actual TCO.

The breakdown of direct and indirect costs used in the GartnerGroup TCO Model include:

- Direct (i.e., budgeted) costs - measure the direct expenditures on IT by an organization (e.g., capital, labor and fees);
- Hardware and software - the capital expenditures and lease fees for servers, client computers (e.g., desktops and mobile computers), peripherals and network components;
- Management - the direct network, system and storage-management labor staffing, activity hours and activity costs, maintenance contracts and professional services or outsourcing fees;
- Support - the help-desk labor hours and costs, help-desk performance metrics, training labor and fees, procurement, travel, support contracts and overhead labor;
- Development - the application design, development, test and documentation labor and fee expenditures including new application development, customization and maintenance;
- Communications fees - the inter-computer communication expenses for lease lines, server access remote access and allocated WAN expenses;
- Indirect (i.e., unbudgeted) costs - measure the capital and management efficiency of IT in delivering expected services to end users;
- End-user IS - the cost of end users supporting themselves (and each other) instead of relying on formal IS support channels (i.e., peer and self support), end-user formal training, casual learning (i.e., non-formal training), self-development/scripting of applications and local file maintenance;
- Downtime - the lost productivity due to planned (i.e., scheduled) and unplanned network, system and application unavailability, measured in terms of lost wages (i.e., lost time).

The GartnerGroup research shows that the initial cost of hardware and software represents only 30 percent of the Total Cost of Ownership (TCO). GartnerGroup and the Telecommunications and Technology Advisory Committee (TTAC) worked at length to determine the TCO model appropriate for the Community College environment. The final section of this appendix provides more detail on the TCO model, including the TCO model components and the cost associated with them.

The cost estimate for the technology using the Total Cost of Ownership model for the Community College is **$3,506 per PC.** Therefore, a TCO computer is one that is funded at a level of support that corresponds to the 19 elements of the TCO model. The TCO model is designed and constructed to be reviewed and analyzed on a continual basis reflecting the ongoing changes and costs as they relate to equipment, software, training, and support personnel. The TTAC will review the model annually to determine adjustments to it as appropriate. The next tables describe the PC baseline models for students, faculty, and

managerial and classified staff. **The TTIP program's intent is to fund the colleges to the baseline minimums using the TCO categories.**

The TTIP Program will provide a baseline level of technology for students, faculty and staff, including these sorts of features to support the goals of student access and success:

- A ratio of 1 computer for every 20 students;
- Computers for all full-time faculty, adequate access for all part-time faculty, and computers for appropriate administrative and support staff;
- A refresh rate of once every three years for computer replacement;
- Access for students, faculty and staff to printers, the local area network, office and virus protection software, and other key information resources, e-mail, and the Internet;
- Computers that are accessible by the disabled based on 10 percent of all workstations;
- Support staffing for both technical backup and direct support for students and faculty;
- Ongoing training for faculty and staff;

Total Cost of Ownership Baseline Planning Tool:

The TCO Module 1 planning will establish a starting point to determine what areas are below the minimum standards as set by the Technology II Strategic Plan. The Chancellor's Office will use this information to demonstrate and support the needs related to technology (the gap) to the organizations that provide funding for technology for the colleges. For the priority section, take 20% of all TCO categories (total of 39) (8 priorities for 1-4 and 7 for priority 5). A number one (1) priority is the most important, mission critical need of the district/college. This might be based on the minimum standard not being met or the current educational and/or technology plans of the district/college. A priority one (1) category would be the first one that available funds would be spent in 2001-02. Priority 4 and/or 5 might have to addressed in later years depending on the costs of 1, 2 and 3.

See definitions in TCO Appendix A for further clarification about categories and standards.

Section 1: Student PC Baseline Standards

TCO #	Category	Minimum Baseline Standard	
A1.a	PCs for student	Year 2000 – 2005: 1 PC for every 20 FTES	
Student PCs at district/college (provided by college/district)		**FTES at district/college (provided by CO MIS)**	**Current Baseline Calculation (FTES/ Student PCs)**
GAP between Current and Minimum Baseline		**Baseline Standard for this district/college, if different from the minimum**	**Priority (1-5) 1 = highest, 5 = lowest**

TCO #	Category	Minimum Baseline Standard	
A1.b	PCs for student with assistive technology	10 percent of all campus computer systems will be configured with industry-standard assistive computer technology to provide access to students with disabilities.	
Student PCs with assistive Technology at district/college provided by college/district		**FTES at district/college provided by CO MIS**	**Current Baseline Calculation**
GAP between Current and Minimum Baseline		**Baseline Standard Goal for this district/college if different from the minimum**	**Priority (1-5) 1 = highest, 5 = lowest**

TCO #	Category	Minimum Baseline Standard	
A2	Printers	Sufficient student printing will be available.	
Number of Printers Available		**Is this Sufficient? Yes No**	
If this is not sufficient, what is the goal of the district/college.			**Priority (1-5) 1 = highest, 5 = lowest**

TCO #	Category	Minimum Baseline Standard	
A3	LAN Access	Each PC will be LAN connected.	
Student PCs provided by district/college		**Student PCs that are LAN connected.**	
GAP between Current and Minimum Baseline		**Baseline Standard Goal for this district/college if different from the minimum**	**Priority (1-5) 1 = highest, 5 = lowest**

TCO #	Category	Minimum Baseline Standard	
A4	Office Software	The majority of PCs will be equipped with office software. It will be up to the campus to decide whether to use a uniform configuration or a hosted applications model.	
Student PCs provided by district/college (from A1)		**Student PCs that are equipped with Office Software.**	**Current Baseline Calculation**
GAP between Current and Minimum Baseline		**Baseline Standard Goal for this district/college if different from the minimum**	**Priority (1-5) 1 = highest, 5 = lowest**

TCO #	Category	Minimum Baseline Standard	
A5	Information Resources & Software	Each PC can access library databases, instructional servers, Web sites and instructional software. Campuses will make every effort to assure that these resources are operational with industry-standard assistive computer technology	
Student PCs provided by district/college (from A1)		**Student PCs that have access to library databases, instructional servers, Web sites and instructional software.**	
GAP between Current and Minimum Baseline		**Baseline Standard Goal for this district/college if different from the minimum**	**Priority (1-5) 1 = highest, 5 = lowest**

TCO #	Category	Minimum Baseline Standard	
A6	E-mail	Each PC will have Web-based **access** to the campus e-mail system. (Students are required to obtain their own ISP account for access.)	
Student PCs provided by district/college (from A1)		**Student PCs that have Web-based access to the campus e-mail system.**	
GAP between Current and Minimum Baseline		**Baseline Standard Goal for this district/college if different from the minimum**	**Priority (1-5) 1 = highest, 5 = lowest**

TCO #	Category	Minimum Baseline Standard	
A7	Internet/Intranet Access	Each PC is equipped with a browser for Internet access	
Student PCs provided by district/college (from A1)		**Student PCs that have a browser for Internet access.**	
GAP between Current and Minimum Baseline		**Baseline Standard Goal for this district/college if different from the minimum**	**Priority (1-5) 1 = highest, 5 = lowest**

TCO #	Category	Minimum Baseline Standard	
A8	Virus detection software	Each PC is equipped with anti-virus software.	
Student PCs provided by district/college (from A1)		**Student PCs that are equipped with anti-virus software..**	
GAP between Current and Minimum Baseline		**Baseline Standard Goal for this district/college if different from the minimum.**	**Priority (1-5) 1 = highest, 5 = lowest**

TCO #	Category	Minimum Baseline Standard	
A9	Access to student services system through internet/intranet only	Each PC will provide students with Web access to student services.	
Student PCs provided by district/college (from A1)		**Student PCs that provide students with Web access to student services.**	
GAP between Current and Minimum Baseline		**Baseline Standard Goal for this district/college if different from the minimum.**	**Priority (1-5) 1 = highest, 5 = lowest**

TCO #	Category	Minimum Baseline Standard		
A10	Refresh rate and currency of computers	PCs and assistive-computer technologies will be replaced on a three-year basis, consistent with industry best practices. The rationale is to reduce TCO by introducing more manageable equipment and refreshing with new software		
Student PCs provided by district/college (from A1)		**1 year or less on June 30, 2001**	**Up to 2 years old on June 30, 2001**	**2 years old as of June 30, 2001**
GAP between Current and Minimum Baseline		**Baseline Standard Goal for this district/college if different from the minimum.**		**Priority (1-5) 1 = highest, 5 = lowest**

TCO #	Category	Minimum Baseline Standard	
A11	PC support infrastructure	CCC campuses will use best-practice approaches to manage their PC population (e.g., ability for remote monitoring and management, electronic inventory of hardware and software)	
		Does college/district use best-practice approaches to manage their PC population (e.g., ability for remote monitoring and management, electronic inventory of hardware and software) **Yes No**	
GAP between Current and Minimum Baseline		**Baseline Standard Goal for this district/college if different from the minimum.**	**Priority (1-5) 1 = highest, 5 = lowest**

Section 2: Faculty PC Baseline Standards

TCO #	Category	Minimum Baseline Standard	
B1	PCs for Full-time Faculty	1 PC for every full-time faculty member (FTEF).	
Full-time Faculty PCs # provided by district/college		**FTES at district/college provided by CO MIS**	**Current Baseline Calculation (FT Faculty PC/FTEF)**
GAP between Current and Minimum Baseline		**Baseline Standard Goal for this district/college if different from the minimum**	**Priority (1-5) 1 = highest, 5 = lowest**

TCO #	Category	Minimum Baseline Standard		
B2	PCs for Part-time Faculty	A goal of 25 percent of full-time equivalent Faculty (FTEF) over the three years with a minimum of 1/3 in the first year.		
Full-time Faculty from B1	**# Part-time faculty**	**PT/FT**	**Part-Time Faculty PCs provided by the college**	**Current Baseline Calculation (PT Faculty PC = FTEF X .25)**
GAP between Current and Minimum Baseline		**Baseline Standard Goal for this district/college if different from the minimum**		**Priority (1-5) 1 = highest, 5 = lowest**

TCO #	Category	Minimum Baseline Standard	
B3	Printers	One Advanced laser printer to be shared across 50 faculty staff.	
Number of Printers Available		**Full-time Faculty PCs # provided from B1**	**Current Baseline Calculation (FT Faculty PC/# of Printers)**
GAP between Current and Minimum Baseline		**Baseline Standard Goal for this district/college if different from the minimum**	**Priority (1-5) 1 = highest, 5 = lowest**

TCO #	Category	Minimum Baseline Standard	
B4	LAN Access	All PCs will have network access.	
Faculty PCs provided by district/college		**Faculty PCs that are LAN connected.**	
GAP between Current and Minimum Baseline		**Baseline Standard Goal for this district/college if different from the minimum**	**Priority (1-5) 1 = highest, 5 = lowest**

TCO #	Category	Minimum Baseline Standard	
B5	Office Software	Each PCs will be equipped with office software including word processing, spreadsheet and presentation design software.	
Faculty PCs provided by district/college (from B1)		**Faculty PCs that are equipped with Office Software.**	
GAP between Current and Minimum Baseline		**Baseline Standard Goal for this district/college if different from the minimum**	**Priority (1-5) 1 = highest, 5 = lowest**

TCO #	Category	Minimum Baseline Standard	
B6	E-mail	Each PC will have Web-based **access** to the campus e-mail system.	
Faculty PCs provided by district/college (from B1)		**Faculty PCs that have Web-based access to the campus e-mail system.**	
GAP between Current and Minimum Baseline		**Baseline Standard Goal for this district/college if different from the minimum**	**Priority (1-5) 1 = highest, 5 = lowest**

TCO #	Category	Minimum Baseline Standard	
B7	E-mail for adjunct instructors	Each adjunct instructor will have an e-mail account.	
Part-time faculty provided by district/college (from B2)		**Adjunct Instructors that have an e-mail account.**	
GAP between Current and Minimum Baseline		**Baseline Standard Goal for this district/college if different from the minimum**	**Priority (1-5) 1 = highest, 5 = lowest**

TCO #	Category	Minimum Baseline Standard	
B8	Internet/Intranet Access	Each PC is equipped with a browser for Internet access	
Faculty PCs provided by district/college (from B1)		**Faculty PCs that have a browser for Internet access.**	
GAP between Current and Minimum Baseline		**Baseline Standard Goal for this district/college if different from the minimum**	**Priority (1-5) 1 = highest, 5 = lowest**

TCO #	Category	Minimum Baseline Standard	
B9	Virus detection software	Each PC is equipped with anti-virus software.	
Faculty PCs provided by district/college (from b1)		**Faculty PCs that are equipped with anti-virus software..**	
GAP between Current and Minimum Baseline		**Baseline Standard Goal for this district/college if different from the minimum.**	**Priority (1-5) 1 = highest, 5 = lowest**

TCO #	Category	Minimum Baseline Standard	
B10	Scanners	There will be one industrial scanner for every 100 faculty members.	
# of Faculty (provided by district/college (from B1))		**Scanners available to faculty.**	**Current Baseline Calculation (# of Faculty/ # of Scanners)**
GAP between Current and Minimum Baseline		**Baseline Standard Goal for this district/college if different from the minimum.**	**Priority (1-5) 1 = highest, 5 = lowest**

TCO #	Category	Minimum Baseline Standard	
B11	Access to Administrative Services	Each PC will have access to administrative systems when appropriate (by the end of 2003).	
Faculty PCs provided by district/college (from B1)		**Faculty PCs that provide access to administrative services.**	
GAP between Current and Minimum Baseline		**Baseline Standard Goal for this district/college if different from the minimum.**	**Priority (1-5) 1 = highest, 5 = lowest**

TCO #	Category	Minimum Baseline Standard	
B12	Information Resources & Software	Each PC should be able to support faculty research of library databases, educational software and course management software.	
Faculty PCs provided by district/college (from B1)		**Faculty PCs that have access to library databases, educational software and course management software.**	
GAP between Current and Minimum Baseline		**Baseline Standard Goal for this district/college if different from the minimum**	**Priority (1-5) 1 = highest, 5 = lowest**

TCO #	Category	Minimum Baseline Standard		
B13	Refresh rate and currency of computers	PCs and assistive-computer technologies will be replaced on a three-year basis, consistent with industry best practices. The rationale is to reduce TCO by introducing more manageable equipment and refreshing with new software		
Total Faculty PCs provided by college/district (from B-3)		**Number of computers that will be 0-1 year old on June 30, 2001**	Number of computers that will be 1.1 to 2 years old on June 30,2001	Number of computers that will be 2.1-3 years old on June 30, 2001
GAP between Current and Minimum Baseline		**Baseline Standard Goal for this district/college if different from the minimum**		**Priority (1-5) 1 = highest, 5 = lowest**

Section 3: Managerial and Classified Staff PC Baseline Standards

TCO #	Category	Minimum Baseline Standard	
C1	PCs for Full-time administrative and classified staff	80% of full-time managerial and classified staff will be provided PCs, as appropriate.	
Full-time Administrative and Classified PCs provided by district/college		**FTE at district/college provided by CO MIS**	**Current Baseline Calculation (FT Admin./Classified PCs /FTE)*.8**
GAP between Current and Minimum Baseline		**Baseline Standard Goal for this district/college if different from the minimum**	**Priority (1-5) 1 = highest, 5 = lowest**

TCO #	Category	Minimum Baseline Standard	
C2	Printers	One Advanced laser printer to be shared between 50 staff.	
Number of Printers Available		**Full-time Staff PCs # provided from c1**	**Current Baseline Calculation (FT Staff PC/# of Printers)**
GAP between Current and Minimum Baseline		**Baseline Standard Goal for this district/college if different from the minimum**	**Priority (1-5) 1 = highest, 5 = lowest**

TCO #	Category	Minimum Baseline Standard	
C3	LAN Access	Network access for each PC.	
Staff PCs provided by district/college (C1)		**Staff PCs that are LAN connected.**	
GAP between Current and Minimum Baseline		**Baseline Standard Goal for this district/college if different from the minimum**	**Priority (1-5) 1 = highest, 5 = lowest**

TCO #	Category	Minimum Baseline Standard	
C4	Office Software	Each PCs has standard office software including word processing, spreadsheet and presentation design software.	
Staff PCs provided by district/college (from C1)		**Staff PCs that are equipped with Office Software.**	
GAP between Current and Minimum Baseline		**Baseline Standard Goal for this district/college if different from the minimum**	**Priority (1-5) 1 = highest, 5 = lowest**

TCO #	Category	Minimum Baseline Standard	
C5	E-mail	All Staff members will have Web-based **access** to the campus e-mail system.	
Staff PCs provided by district/college (from C1)		**Staff PCs that have Web-based access to the campus e-mail system.**	
GAP between Current and Minimum Baseline		**Baseline Standard Goal for this district/college if different from the minimum**	**Priority (1-5) 1 = highest, 5 = lowest**

TCO #	Category	Minimum Baseline Standard	
C6	Internet/Intranet Access	Each PC is equipped with a browser for Internet access	
Staff PCs provided by district/college (from C1)		**Staff PCs that have a browser for Internet access.**	
GAP between Current and Minimum Baseline		**Baseline Standard Goal for this district/college if different from the minimum**	**Priority (1-5) 1 = highest, 5 = lowest**

TCO #	Category	Minimum Baseline Standard	
C7	Virus detection software	Each PC is equipped with anti-virus software.	
Staff PCs provided by district/college (from C1)		**Staff PCs that are equipped with anti-virus software..**	
GAP between Current and Minimum Baseline		**Baseline Standard Goal for this district/college if different from the minimum.**	**Priority (1-5) 1 = highest, 5 = lowest**

TCO #	Category	Minimum Baseline Standard	
C8	Access to Administrative Services	Each PC will have access to administrative systems, when appropriate.	
Staff PCs provided by district/college (from C1)		**Staff PCs that provide access to administrative services.**	
GAP between Current and Minimum Baseline		**Baseline Standard Goal for this district/college if different from the minimum.**	**Priority (1-5) 1 = highest, 5 = lowest**

TCO #	Category	Minimum Baseline Standard		
C9	Refresh rate and currency of computers	PCs and assistive-computer technologies will be replaced on a three-year basis, consistent with industry best practices. The rationale is to reduce TCO by introducing more manageable equipment and refreshing with new software		
Total PCs provided by college/district (from S1)		**Number of computers that will be 0-1 year old on June 30, 2001**	Number of computers that will be 1.1 to 2 years old on June 30,2001	Number of computers that will be 2.1-3 years old on June 30, 2001
GAP between Current and Minimum Baseline		**Baseline Standard Goal for this district/college if different from the minimum.**	**Priority (1-5) 1 = highest, 5 = lowest**	

Section 4: Support Baseline Standards

TCO #	Category	Minimum Baseline Standard	
S1	Network and Systems Admin. (Novel, etc. include wiring staff) support staff	1 staff / 300 PCs;	
PCs that are supported by district/college		**Network and Systems Admin. (Novel, etc. include wiring staff) support staff Available**	**Current Baseline Calculation (PCs/ 300)**
GAP between Current and Minimum Baseline		**Baseline Standard Goal for this district/college if different from the minimum**	**Priority (1-5) 1 = highest, 5 = lowest**

TCO #	Category	Minimum Baseline Standard	
S2	Technical Management support staff	1 / 500 PCs	
PCs that are supported by district/college		**Technical Management support staff Available**	**Current Baseline Calculation (PCs/ 500)**
GAP between Current and Minimum Baseline		**Baseline Standard Goal for this district/college if different from the minimum**	**Priority (1-5) 1 = highest, 5 = lowest**

TCO #	Category	Minimum Baseline Standard	
S3	Web Administration support staff	1 staff per 12,000 FTES;	
FTES at district/college provided by MIS		**Web Administration support staff available**	**Current Baseline Calculation (FTES/12,000**
GAP between Current and Minimum Baseline		**Baseline Standard Goal for this district/college if different from the minimum**	**Priority (1-5) 1 = highest, 5 = lowest**

TCO #	Category	Minimum Baseline Standard	
S4	Administrative Systems Support (web, user development applications) staff	1 staff per 12,000 FTES	
FTES at district/college provided by MIS		**Administrative Systems support staff available**	**Current Baseline Calculation (FTES/12,000**
GAP between Current and Minimum Baseline		**Baseline Standard Goal for this district/college if different from the minimum**	**Priority (1-5) 1 = highest, 5 = lowest**

TCO #	Category	Minimum Baseline Standard	
S5	Level 1 Support staff	1 staff / 150 PCs	
PCs at district/college		**Level 1 Support staff available**	**Current Baseline Calculation (PCs/150)**
GAP between Current and Minimum Baseline		**Baseline Standard Goal for this district/college if different from the minimum**	**Priority (1-5) 1 = highest, 5 = lowest**

TCO #	Category	Minimum Baseline Standard	
S6	Application Development staff	1 staff / 6,000 FTES	
FTES at district/college provided by MIS		**Application Development staff available**	**Current Baseline Calculation (FTES/6,000**
GAP between Current and Minimum Baseline		**Baseline Standard Goal for this district/college if different from the minimum**	**Priority (1-5) 1 = highest, 5 = lowest**

TCO #	Category	Minimum Baseline Standard	
S7	Network staff	1 staff / 12,000 FTES	
FTES at district/college provided by MIS		**Network support staff available**	**Current Baseline Calculation (FTES/12,000)**
GAP between Current and Minimum Baseline		**Baseline Standard Goal for this district/college if different from the minimum**	**Priority (1-5) 1 = highest, 5 = lowest**

Section 5: Prioritization Tables

(from the tables above: Priority (1-5 1=highest, 5 = lowest)

Priority		TC0 #	Category
1			
1			
1			
1			
1			
1			
1			
1			
1			
1			

Priority		TC0 #	Category
2			
2			
2			
2			
2			
2			
2			
2			
2			
2			

Priority		TC0 #	Category
3			
3			
3			
3			
3			
3			
3			
3			
3			
3			

Priority 1-5		TC0 #	Category
4			
4			
4			
4			
4			
4			
4			
4			
4			
4			

Priority		TC0 #	Category
5			
5			
5			
5			
5			
5			
5			
5			
5			
5			

Section 6: Background

The budget planning process is driven by a vision for technology and it's relationship to the goals and expectations for student learning and student success.

The budget planning process should take into account the following factors:

- initial costs for equipment, software and other necessary infrastructure costs
- funding for ongoing costs (for upgrades and maintenance of hardware)
- planning for obsolescence and the need to replace equipment and acquire additional software
- substantial allocations for professional development to support ongoing training and staff development programs.
- a permanent line item in the budget is established to support allocations for the purchase, maintenance and updating of technology resources.
- Full advantage is taken of opportunities to stretch available financial resources allocated to technology (e.g. partnerships with local businesses; cooperatives or consortia for purchasing technology; evaluation of the potential advantages of lease/purchase agreements, etc.).
- Opportunities to raise funds to expanding financial resources available for technology are fully explored (e.g. grants from state or federal agencies and private or corporate sponsors are pursued; alumni organizations are contacted to request support; tuition fees from continuing education courses or seminars in technology contribute to supporting the technology plan).

Expenditure Plan

Total Cost of Ownership Model
Expenditures by TCO Computer Funding Categories
2001-02

TCO Allocation for 2001-02:
Student $_____
Faculty $_____
Staff $_____
Total $_____

Direct Expenditure for Hardware/Software					
Sub Category	**Student**	**Faculty**	**Staff**	**Total Exp. By Sub-cat.**	**% of Total**
PC hardware and Operating systems cost					
Assistive technology hardware and software(10% of PCs)					
O/S and Office Software Licenses					
Peripherals					
Network Operating System Hardware					
NOS Licenses					
Switches, hubs and bridges (Hardware and Software)					
Wiring					
NSM Hardware and Software					
Servers (HDW and SFTW) for web services)					
Sub-Total Expenditure					

Direct Expenditure for Training					
Sub Category	**Student**	**Faculty**	**Staff**	**Total Exp. By Sub-cat.**	**% of Total**
Training					
Technical staff training					
Sub-Total Expenditure					

Direct Expenditures for Systems Management					
Sub Category	**Student**	**Faculty**	**Staff**	**Total Exp. By Sub-cat.**	**% of Total**
Network and Systems Admin. (Novel, etc. include wiring staff)					
Technical Management					
Web Administration					
Administrative Systems Support (web, user dev. applications)					
Sub-Total Expenditure					

Direct Expenditure for Support					
Sub Category	**Student**	**Faculty**	**Staff**	**Total Exp. By Sub-cat.**	**% of Total**
Level 1 Support					
Sub-Total Expenditure					

Direct Expenditure for Development Support					
Sub Category	**Student**	**Faculty**	**Staff**	**Total Exp. By Sub-cat.**	**% of Total**
Application Development					
Sub-Total Expenditure					

Direct Expenditure for Communications Support					
Sub Category	**Student**	**Faculty**	**Staff**	**Total Exp. By Sub-cat.**	**% of Total**
Network					
Sub-Total Cost					
Total Cost (TCO)					

Section 7: Overall Technology Budget

Technology Budget Other than TCO Funding

Source	Amount	Use

Section 8: Projected Expenditures by Category and Priority - Post 2001-02

***Optional* planning tool, not required.**

Category	2002-03	2003-04	2004-05	2005-06
Direct Expenditure for Hardware/Software				
Direct Expenditure for Training				
Direct Expenditures for Systems Management				
Direct Expenditure for Support				
Direct Expenditure for Development Support				
Direct Expenditure for Communications Support				
Total Cost (TCO)				

TCO Appendix A

Definitions for Technology Plan II TCO Model

TCO#	Item	Definition
A1.a	Student PC	Any District-owned computer qualifies where 80% of its usage is by student(s) gaining instructional benefits either through directed course requirements or through personal study. Included would be computers in instructional computer labs as well as computers providing access to library materials, assessment & testing, career and vocational information, academic course materials, and counseling information. Computers used primarily for registration or access to administrative information would not be included.
A1.b	Industry standard assistive computer technology	Any District-own computer qualifies if it contains specialized equipment (hardware, software, or furniture) whose function is to meet the specialized needs of students with disabilities. Computers equipped with modern operating systems (such as Windows ME and OS-9), which contain specialized features to facilitate access, shall not be counted if they have no other specialized equipment.
A2	Sufficient printing	Each District may set its own standards to define "sufficient".
A3	LAN connected	A "LAN" is defined as the interconnection of two or more computers or network devices.
A4	Majority	More than 50%
A4	Office software	One or more of the following types of packages: spreadsheet, word processing, presentation software
A5	Instructional server	Any District-owned computer where 80% of its usage can be attributed to providing resources across a "LAN" to "student PCs" for the purpose of meeting the instructional needs of students.
A6	Web-based access to campus email system	Any "student PC" qualifies that: • Has a network connection capable of reaching the campus email server • Has a browser which can send email • Access the campus directory of email addresses through a Web interface
A7	Browser for Internet access	All "student PCs" with modern operating systems (Windows, OS-9) qualify.
A8	Anti-virus software	Any brand of anti-virus software that is initiated and runs as a process on a "student PC". Anti-virus software that runs on a firewall (server), email server, or other type of server does not count.
A9	Web access to student services	Any "student PC" that • Has a network connection capable of reaching any server providing student services functions for the District through a web-based interface • Has a browser (all modern operating systems qualify) Provided that the district has enabled one or more of the following student services functions through a Web-based interface • Student grades • Transcripts • Registration • Career selection • Education plan

		• Degree audit • Financial aid information • Course articulation • Others as defined by the Students Services function of the District
A10	Refresh rate and currency	The maximum (desired) number of years that a "student PC" will be operated and maintained before it is replaced.
A11	Remote monitoring	The capability to determine the health or status of a "student PC" from a remote, centralized location on the network.
A11	Remote management	The capability to alter the configuration of or install software on a "student PC" from a remote, centralized location on the network
A11	Electronic inventory of hardware and software	The capability to collect inventory information about "student PCs" from a remote, centralized location on the network
B1	PC	Personal Computer (not specific to Intel based systems)
B2	25% of full-time equivalent Faculty (FTEF) over the three years with a minimum of 1/3 in the first year.	1 computer for every four FTEF. (A computer, which is not necessarily assigned to a specific faculty member, qualifies if 80% of the usage of the computer is reserved for part time faculty member use.)
B3	Advanced laser printer	Any laser printer with a resolution of 300 dpi or greater qualifies.
B4	LAN access	A "LAN" is defined as the interconnection of two or more computers or network devices.
B6	Web-based access to campus email system	Similar to the definition used for A6
B7	Email account	An account in a District or college based email system that allows the user to receive and send email
B8	Browser for Internet access	All computers with modern operating systems (Windows ME, OS-9, etc.) qualify.
B9	Anti-virus software	Any brand of anti-virus software that is initiated and runs as a process on a faculty computer. Anti-virus software that runs on a firewall (server), email server, or other type of server does not count.
B10	Industrial Scanner	Any scanner qualifies
B11	Access to administrative Systems when appropriate	"Administrative systems" include all automated student services and financial functions. "Access" is defined as Web-based, client-based, or terminal-based (through an emulator). "When appropriate" will be determined by local policies and procedures.
B12	Should be able to support	Each faculty computer that has network access to an automated library card catalog, one or more on-line bibliographic databases, and course management software such as WebCT or Blackboard qualifies.
C2	Advanced laser printer	Any laser printer with a resolution of 300 dpi or greater qualifies.
C3	LAN access, network access	A "LAN" is defined as the interconnection of two or more computers or network devices.
C4	Standard	Each district / college may set its own standard.
C5	Web-based access to campus email system	Similar to the definition used for A6
C6	Browser for Internet access	All computers with modern operating systems (Windows, OS-xx) qualify.

C7	Anti-virus software	Any brand of anti-virus software that is initiated and runs as a process on a faculty computer. Anti-virus software that runs on a firewall (server), email server, or other type of server does not count.
C8	Access to administrative Systems when appropriate	"Administrative systems" include all automated student services and financial functions. "Access" is defined as Web-based, client-based, or terminal-based (through an emulator). "When appropriate" will be determined by local policies and procedures.
S1	Network and systems Admin.	Network / Systems Administrator: a technician who is assigned the responsibility of maintaining LANs and their associated servers.
S2	Technical Management Support Staff	Any manager who has responsibility for maintenance and development of the campus network infrastructure, information technology automation systems to support student services, desktop and instructional lab computers, or other technology-related support functions.
S3	Web Administration Support Staff	The Webmaster and any other technician whose primary responsibility is to manage the servers hosting Web pages and to provide technical assistance in the maintenance and development of Web pages.
S4	Administrative Systems Support (web, user development applications) staff	Programmers / analysts whose primary function is to develop and maintain automated systems providing instructional and student services functions
S5	Level 1 Support Staff	Any technician whose primary responsibility is to configure and maintain desktop computers, instructional lab computers, and the supporting infrastructure (servers, LANs, switches, etc.)
S6	Application Development Staff	Instructional Technology Specialists (and other specialists) whose primary responsibility is to provide technical assistance to faculty to facilitate the integration of instructional materials and technology.
S7	Network staff	Network systems specialists who are assigned the responsibility of maintaining the campus backbone and WANs

Module 2: Expand Access to Multi-media Classrooms

More Information on the Multi-media Classroom will be included in the September 2001 TTIP Planning Document

Module 3: Disabled Students Programs and Services (DSP&S) Access to Print and Electronic Information

Overview:
Subtitle A of Title II of the Americans with Disabilities Act, P.L. 202-336, prohibits discrimination on the basis of disability by public entities. It protects qualified individuals with disabilities from discrimination on the basis of disability in the services, programs, or activities of all State and local governments; and it extends the prohibition of discrimination in federally assisted programs established by Section 504 of the Rehabilitation Act of 1973 to all activities of State and local governments. These legal requirements prohibit discrimination and require that programs provide effective communications, timeliness of delivery, accuracy of translation, and the delivery of information in a accessible medium which is appropriate to the significance of the message and the abilities of the individual with disabilities.

Background:
The California Community College system provides open access to a diverse student population. Each college is responsible for improving their capacity to serve students with disabilities, and to assure the availability of equal access to print and electronic material. The California Community College system must design and deliver information in an accessible format in order to engage all student populations in the postsecondary educational system.

Objectives:

3.1: Local Production of Print Information in Alternate Media Format (Braille, E-text, Large Print, and Audio)

3.2: Statewide Service Center for the Production of Print Information in Alternate Media Format (Braille, E-text, Large Print, and Audio) and the Acquisition of Electronic Information from Publishers and Manufacturers of Instructional Materials

3.3: Access to Electronic Information

3.4: College Technical Assistance and Faculty Support in Assistive Technology, Alternate Media, and Access to Electronic Information.

Module 3: Disabled Students Programs and Services (DSP&S)

Access to Print and Electronic Information

Baseline Funding Fiscal Year 2000-2001 through 2005-2006

3.1: Local Production of Print Information in Alternate Media Format (Braille, E-text, Large Print, and Audio)			
College Braille Equipment For System Access to Print Information	**$588,500**	Individual College Braille Equipment Allocation	**$5,449*** *one time allocation
3.2: Statewide Service Center for the Production of Print Information in Alternate Media Format (Braille, E-text, Large Print, and Audio) and the Acquisition of Electronic Information from Publishers and Manufacturers of Instructional Materials			
Statewide Alternate Text Production Center For System Access to Print Information	**$697,500 *** • Includes one-time equipment funds in the amount of $100,500		
3.3: Access to Electronic Information			
Statewide Funding for Video Based Instruction	**$2,520,000*** *Funding per year for the next six fiscal years beginning 00-01 through 05-06	Individual College Funding for Video Based Instruction	**$10,000 base allocation + unduplicated student count distributed proportionally to each college** *Funding per year for the next six fiscal years beginning 00-01 through 05-06
Statewide Funding for Editing Deck Equipment	**$1,070,000**	Individual College Funding for Editing Deck Equipment	**$9,907*** *One-time equipment funds
3.4: College Technical Assistance and Faculty Support in Assistive Technology, Alternate Media, and Access to Electronic Information.			
Statewide Funding for High Tech Center Specialist Positions	**$6,420,000**	Individual College Funding for High Tech Center Specialist	**$59,444**
Statewide Funding For Electronic and Alternate Media Specialists at the High Tech Center Training Unit	**$281,716**		

Objective:

3.1: Local Production of Print Information in Alternate Media Format (Braille, E-text, Large Print, and Audio)

Strategies:

3.1.a. Campus Braille Production Equipment

The Chancellor's Office, in consultation with the High Tech Center Training Unit (HTCTU) and the Alternate Media Taskforce, developed a standardized Braille equipment package offered at a reduced price to participating colleges through the Community College Foundation Cooperative Purchasing Program. The equipment is intended to: (1) provide an end-to-end technology solution to the statewide alternate text production configuration; (2) ensure consistent training and support throughout the State by the HTCTU; (3) ensure compatible technology systems and production solutions. Each college received funding secured by the Chancellor's Office to offset the costs associated with the acquisition of the Braille Production Equipment.

3.1.b. Local Assistance from High Tech Specialist/Alternate Media Specialist

The Chancellor's Office secured permanent, on going DSP&S categorical funding to establish a High Tech Specialist/Alternate Media Specialist position at each community college campus. This position is responsible for providing the following services: (1) Serve as a liaison between faculty, students and the DSP&S program to secure and translate instructionally related materials into alternate formats in a timely manner; (2) Provide guidelines to faculty and staff for formatting documents and information; (3) Produce information in alternate formats; (4) Serve as liaison to the statewide Alternate Text Production Center and to community agencies utilized on a contract basis to produce alternate media.

3.1.c. *Guidelines for Producing Instructional and Other Printed Materials in Alternate Media for Persons with Disabilities* (April 2000)

The Chancellor's Office developed comprehensive guidelines for colleges to use in responding to requests for materials in alternate media. The guidelines include procedures that individual colleges can implement to assist them in obtaining electronic text from Publishers and Manufacturers of instructional material until such time that a Statewide Alternate Text Production Center is established.

3.1.d. Educational Accommodations

Annual DSP&S funding is allocated through the apportionment process to each Community College District in the State. These funds may be used to provide support services and academic adjustments to enable eligible students with disabilities to participate in regular activities, programs and classes offered by the college.

3.1.e. Technical Assistance, Training, and Support from the High Tech Center Training Unit (HTCTU) –De Anza Community College

Technical assistance, training workshops, and support has been expanded at the High Tech Center Training Unit to include information designed to familiarize colleges with automation, assistive technology, and the local production of alternate media for students with disabilities. A permanent full-time Alternate Media Specialist position has been created at the HTCTU. The new position will conduct campus site visits to evaluate and review campus production of Alternate Media.

Objective:

3.2: Statewide Service Center for the Production of Print Information in Alternate Media Format (Braille, E-text, Large Print, and Audio) and the Acquisition of Electronic Information from Publishers and Manufacturers of Instructional Materials

Strategies:

3.2.a. Alternate Text Production Center (ATPC)

The Chancellor's Office secured permanent on-going funding to establish and maintain a Statewide Center that will serve as a resource for the entire California Community College system in the production of documents into alternate media. The center will use advance networking, electronic document management, and state-of-the-art format conversion technologies. The center will function as the single point of contact for all California Community Colleges in securing electronic text from publishers of instructional material for eligible students with disabilities. In addition, the center will develop and maintain an on-line web-based database of all alternate media obtained by the Alternate Text Production Center. Center services may be available to other postsecondary public institutions (California State University and University of California) on a fee-for-service basis.

3.2.b. Establishment of DSP&S Specialist for Statewide Coordination and Support

A DSP&S Specialist position in the Chancellor's Office has been established to provide statewide coordination to community colleges in access to print and electronic information. The position will provide oversight and direction to the Alternate Text Production Center Grant and the High Tech Center Training Unit Grant.

Objective:

3.3: Access to Electronic Information

Strategies:

3.3.a. Incorporate Universal Design components in the construction of websites and On-Line Distance Education curriculum.

Coordination and training on electronic information development to ensure accessibility to students with disabilities (visual, auditory, and cognitive). Provide technical assistance on issues that impact electronic information accessibility: navigational elements, graphics (pictures, charts), content (tables, and layout elements-frames) and multimedia (sound) components.

3.3.b. Technical Assistance, Training, and Support from the High Tech Center Training Unit (HTCTU) –De Anza Community College

Technical assistance, training workshops, and support has been expanded at the High Tech Center Training Unit to include information designed to familiarize colleges with automation, assistive technology, and the local production of alternate media for students with disabilities. A permanent full-time Electronic Access Specialist position has been created at the HTCTU. The new position will conduct campus site visits to evaluate and review the campus access to Distance Education, California Virtual College, and Instructional Audiovisual Materials (videotapes). Additional responsibilities of the position include: (1) research and evaluation of emerging access technologies, (2) develop, maintain, and support materials to enhance web accessibility, (3) develop cooperative relationships with developers of web-based curriculum development software and the California Community College Foundation to support the identification and purchase of software tools to produce accessible web content, and (4) support the training needs of the statewide California Virtual College and conduct site visits of the California Virtual College Regional Centers.

3.3.c. Local Assistance from High Tech Specialist/Alternate Media Specialist

The Chancellor's Office secured permanent, on going DSP&S categorical funding to establish a High Tech Specialist/Alternate Media Specialist position at each community college campus. This position is responsible for providing the following services: (1) Serve as a liaison between faculty, students and the DSP&S program to design or re-design electronic information in an accessible format; (2) Provide guidelines to faculty and staff on campus technology and accessibility; (3) Research and evaluate electronic information for accessibility; (4) Serve as liaison to the statewide High Tech Center Training Unit on the California Virtual College and Distance Education Access issues.

3.3.d. *Distance Education: Access Guidelines for Students with Disabilities* (August 1999)

The Chancellor's Office developed system-wide access guidelines for distance learning and campus web pages. Resources were identified and dedicated to providing guidance to colleges in the development of distance learning to make it usable by students with disabilities. The universal design components for community college distance education provide for "built-in" accommodation and/or interface which is accessible to "industry standard" assistive computer technology in common use by individuals with disabilities.

3.3.e. Educational Accommodations

Annual DSP&S funding is allocated through the apportionment process to each Community College District in the State. These funds may be used to provide support services and academic adjustments to enable eligible students with disabilities to participate in regular activities, programs and classes offered by the college. Assistive Computer Technologies are hardware components that provide an external adjustment typically used by students with physical disabilities.

3.3.f. Establishment of DSP&S Specialist for Statewide Coordination and Support

A DSP&S Specialist position in the Chancellor's Office has been established to provide statewide coordination to community colleges in access to print and electronic information. The position will provide oversight and direction to the Alternate Text Production Center Grant and the High Tech Center Training Unit Grant.

3.3.g. Access To Distance Education and Instructional Audiovisual Materials

The Chancellor's Office received additional funding for each community college to caption audiovisual materials and purchase video editing equipment. Some of the funds were approved in the State budget for the next six years, aligning the use of the funds with the curriculum review cycle. These funds are intended to assist colleges in meeting their obligation to provide access to deaf/hard-of-hearing students.

Objective:

3.4: College Technical Assistance and Faculty Support in Assistive Technology, Alternate Media, and Access to Electronic Information.

Strategies:

3.4.a. Technical Assistance, Training, and Support from the High Tech Center Training Unit (HTCTU) –De Anza Community College

Technical assistance, training workshops, and support has been expanded at the High Tech Center Training Unit to include information designed to familiarize colleges with automation, assistive technology, and the local production of alternate media for students with disabilities. Two permanent full-time positions have been established. Each position has a specific focus: Electronic Information (Distance Education and Web Design) and Alternate Media.

3.4.b. Local Assistance from High Tech Specialist/Alternate Media Specialist

The Chancellor's Office secured permanent, on going DSP&S categorical funding to establish a High Tech Specialist/Alternate Media Specialist position at each community college campus. This position is responsible for providing the following services: (1) Serve as a liaison between faculty, students and the DSP&S program in the development of accessible instructional media; (2) Provide guidelines to faculty and staff in the design or re-design of accessible Distance Education Programs; (3) Provide technical assistance to campus faculty and staff on accessible instructional and teaching techniques; (4) Serve as liaison to the statewide High Tech Center Training Unit on accessible Distance Education and electronic media issues.

3.4.c. *Guidelines for Producing Instructional and Other Printed Materials in Alternate Media for Persons with Disabilities* (April 2000)

The Chancellor's Office developed these comprehensive guidelines for colleges to use in responding to requests for materials in alternate media. The guidelines include procedures that individual colleges can implement to assist them in obtaining electronic text from Publishers and Manufacturers of instructional

3.4.d. *Distance Education: Access Guidelines for Students with Disabilities* (August 1999)

The Chancellor's Office developed system-wide access guidelines for distance learning and campus web pages. Resources were identified and dedicated to providing guidance to colleges in the development of distance learning to make it usable by students with disabilities. The universal design components for community college distance education provide for "built-in" accommodation and/or interface which is accessible to "industry standard" assistive computer technology in common use by individuals with disabilities.

3.4.e. Establishment of DSP&S Specialist for Statewide Coordination and Support

A DSP&S Specialist position in the Chancellor's Office has been established to provide statewide coordination to community colleges in access to print and electronic information. The position will provide oversight and direction to the Alternate Text Production Center Grant and the High Tech Center Training Unit Grant.

DSP&S

Frequently Asked Questions (FAQ's)

QUESTION:
Are there any restrictions that preclude colleges from establishing the High Tech/Alternate Media Specialist position in an area outside of the Disabled Students Programs & Services (DSP&S) Unit? For example, can a college establish a position within the Information Technology Unit? And, can the duties of the position include the "deliverables" of the HT/AM Specialist position and "standard" college information technology responsibilities?

ANSWER:
Each college received an initial (first-year) allocation in the amount of $59,444 to establish one or more positions to focus on campus-wide access issues. These positions are not to emulate the role of the current High Tech Center Specialists, but rather to add new services to the college. The new positions, different than the current High Tech Center Specialists, are not to be used to provide assistance and instruction to students. The new positions are to provide assistance and instruction to faculty and staff.

The "deliverables" of the position have been identified in the 2000-01 Allocations for DSP&S dated October 6, 2000 [weblink: http://www.cccco.edu/cccco/ss/DSPS/Student%20Services%20&%20Special%20Programs%20Allocation%20Information.htm].

Colleges have the flexibility to fulfill the intent of the funding by establishing one or more new positions to focus on campus-wide issues. These positions are funded by DSP&S, but are not required to report to the DSP&S Coordinator. You may appoint the person in the Information Technology Unit if that is a more practical solution for your campus. However, only the percentage of time that the position spends on HT/AM Specialist activities can be funded with DSP&S categorical funds. The other "general" information technology duties must be funded with a source other than DSP&S.

Definitions:

AB 422

Assembly Bill 422 (Ch. 37, Statutes of 1999) was authored by Assemblymember Darrell Steinberg. This bill added Section 67302 to the *California Education Code* effective January 1, 2000. It requires every individual, firm, partnership or corporation publishing or manufacturing printed instructional materials, as defined, for students attending the University of California, the California State University, or a California Community College to provide to the university, college, or particular campus of the university or college, for use by students at no additional cost and in a timely manner, any printed instructional material in unencrypted electronic form upon the receipt of a written request, provided that the university or college complies with certain conditions.

Accessible formats

With reference to printed materials, accessible formats include braille, large print, audio and electronic text formats.

Accommodation

Altering existing facilities, instruction, and/or services so they are readily accessible to and usable by individuals with disabilities.

ADA

The Americans with Disabilities Act of 1990 (42 U.S.C. 12100 et seq.). This federal civil rights law guarantees and defines equal access for people with disabilities.

Alternate Media

Generally refers to text or other materials produced in a specialized format intended for use by persons with disabilities. Types of alternate media include, but are not limited to, braille, large print, audio material, certain types of electronic files, and video with closed or open captioning.

Alternate Media Center

A campus or state-wide facility for the production of text in alternate media.

ASCII text

American Standard Code of Information Interchange. ASCII provides a numerical equivalent for the letters and symbols which can be displayed on a computer screen. The most basic of all electronic text formats.

Audio format

Text materials spoken by a human reader or speech synthesizer and recorded on audiotape, CD ROM, DVD, MP3, or other electronic media.

BCP
Budget Change Proposal. This is the process used by California state agencies, such as the Chancellor's Office for the California Community Colleges, to request changes in their level of funding.

Book Exchange
A web based electronic database for retrieval of information about textbooks and other print materials available in alternate media:
http://htcoff1.htctu.fhda.edu/tango/bookex/bookex.html.

Braille
Braille is a system of tactile reading and writing in which raised dots represent the letters of the alphabet. Braille also contains equivalents for punctuation marks and provides symbols to show letter groupings. Braille is read by moving the hand or hands from left to right along each line. Both hands are usually involved in the reading process, and reading is generally done with the index fingers. The average reading speed is about 125 words per minute, but greater speeds of up to 200 words per minute are possible.

Braille cell
The basic unit of braille is the braille cell. It is composed of six dots: the upper left dot is dot 1, the middle left dot is dot 2, the lower left dot is dot 3, the upper right dot is dot 4, the middle right dot is dot 5, and the lower right dot is dot 6. From these six dots you can get 64 possible combinations.

Braille formats
When material is laid out on paper for the sighted reader, it is done for visual effect. However, in braille the object is maximization of space. Due to the bulkiness of braille volumes, you want to put as much material as possible on the page, while at the same time maintaining readability. There are different formats for literary works and textbooks. (See below). Because of the physical (rather than visual) nature of braille, format standards are especially important. Small differences in where text is placed on the page can tell the braille reader a lot about what they are reading. In any braille format, with or without a braille translation program, certain elements are especially crucial components of page layout. These include treatment of indent and runover, braille page numbers, inkprint page indicators, and running heads.

Braille page
One single-spaced print page equals two to three braille pages.

Braille printers
Also called embossers. The devices used to produce hard copy braille.

Braille production

The process of translating, proofing, formatting and printing braille documents.

Braille translation
The process of translating inkprint or electronic documents into Grade II, Nemeth Code or other forms of braille.

Braille translation software
Specialized software capable of accurately translating text into Grade II braille and preserving simple page formatting.

California Code of Regulations
The *California Code of Regulations* (CCR) contains the regulations that have been formally adopted by California state agencies, including those adopted by the Board of Governors of the California Community Colleges.

CCTV
Television equipment used by persons with low vision to magnify inkprint and other text materials for more convenient viewing, usually of desktop size.

CD-ROM
Compact Disk - Read Only Media. CD and DVD (Digital Versatile Disk) media are high capacity storage formats which can be used to save and retrieve text, audio and video information.

Certified Transcriber
An individual trained in the proper transcription of printed materials into braille who has been certified by the National Library Service for the Blind and Physically Handicapped of the Library of Congress.

Compatible with braille translation software
An electronic text file which can be translated into braille using commonly available braille translation software. Files provided by publishers pursuant to AB 422 are required to be in such a format.

Convert the file
Generally refers to converting a file from one format to another (i.e. PageMaker to Microsoft Word).

Department of Rehabilitation
The state of California agency whose mission is to assist Californians with disabilities in obtaining and retaining employment and maximizing their ability to live independently in their communities.

Distance education
Generally refers to one of a variety of instructional delivery methods which can include one or two-way (interactive) television, web based courses, e-mail or software. In all cases, participating students attend most or all classes from home, their worksite or other location.

Dot
The smallest element of a braille cell.

Download
To copy the contents of an electronic file from one location to another. Possibly across the internet, from one location to another on a campus network or to removable media.

DSP&S
Disabled Students Programs and Services. Established in 1976 through the passage of AB 77 (Lanterman), which funded support services and instructional programs for students with disabilities in the California Community Colleges so that they can participate fully in their educational activities.

Electronic form
A digital representation of a paper form. Generally used for data collection.

Electronic text
Text in MS Word, ASCII or other proprietary format. Also called "e-text".

Electronic versions of instructional materials
Textbooks, tests, catalogs or other materials stored on floppy, zip, CD ROM, DVD or other storage media. Exact or similar in appearance to inkprint versions of the same material.

Elements
Generally refers to page formatting elements such as headings, subheadings, headers, footers, sidebars and marginalia of various types.

File format
The unique public or proprietary file storage format in which a document has been saved.

Formatting E-text
Generally refers to the process of preserving the page location or text content of titles, paragraphs, columns, sidebars, footnotes, headers, footers, graphics, etc when scanning pages or moving documents between file formats.

Grade II braille
To reduce the bulkiness of braille there is a system of braille contractions, or abbreviations known as Grade II Braille. For general text production, materials should be provided in Grade II Braille. Grade II braille is the format most commonly used by persons who are blind.

Graphics
Usually refers to charts, drawings, photographs, animated objects, or digital video.

Hardcopy
Text printed on paper.

High Tech Center Training Unit
Located at DeAnza College, a training and support facility for community college faculty wishing to acquire or improve teaching skills, methodologies, and pedagogy in Assistive and Instructional Computer Technology.

Inkprint
Text printed on paper.

Instructional material
A general term referring to textbooks, multimedia, tests, forms, class handouts or other materials written and published primarily for use by students in postsecondary instruction.

Large Print
Inkprint or electronic text displayed at a size greater than or equal to 14 point.

Literary format
A particular method of formatting literary works and other general purpose texts in braille. In literary format without a running head, text appears on every line of the braille page. The braille page number appears in the rightmost cells of the first line, with at least three blank cells before the number.

Nemeth Code
Letters in the Nemeth Code are those of standard braille, but nearly every other cell has a different meaning than in standard English braille. Nemeth numbers for the digits 1-9, 0 are the letters a-i, j except that they are dropped one row. This number definition is possible because the letters a-j are all upper cells. In SEB most of these dropped cells are punctuation marks, so a blind person learning math must learn to interpret dropped cells as punctuation marks when reading text and as numbers when reading math.

OCR
The United States Department of Education, Office for Civil Rights. This is the federal entity charged with enforcement of civil rights, including the rights of persons with disabilities, in educational institutions.

Page layout
The arrangement of text and graphics on an inkprint or electronic page.

Proofread
Within the context of alternate media, proofreading might mean, in addition to checking for errors in spelling, correcting page formatting errors, formatting braille documents so they maintain critical content design elements, or listening to the audio content of a recorded book to assure that it remains faithful to the inkprint version.

Proprietary formats
Refers to text formatting, storage and retrieval methods often used by textbook publishers and printers. Examples include Quark Express, FrameMaker, PageMaker and PDF.

Recorded books
Also known as books on tape. Thousands of popular titles and textbooks are available through Recordings for the Blind and Dyslexic and other agencies.

Refreshable braille display
When used in conjunction with screen reading software, these devices provide the text content of a document, web page or other information displayed on the computer screen in "real-time" braille.

RFB&D
Recording for the Blind & Dyslexic was founded in 1948 to help blind and disabled veterans take full advantage of the GI Bill educational benefits. RFB&D is a volunteer organization whose sole purpose is to provide educational materials in recorded and computerized formats at every academic level. RFB&D materials are for all people unable to read standard print because of a visual, perceptual, or other physical disability.

RTF
RTF (Rich Text Format) is a file format that lets you exchange text files between different word processors in different operating systems. For example, you can create a file using Microsoft Word 97 in Windows 95, save it as an RTF file (it will have a ".rtf" file name suffix), and send it to someone who uses WordPerfect 6.0 on Windows 3.1 and they will be able to open the file and read it. (In some cases,

the RTF capability may be built into the word processor. In others, a separate reader or writer may be required.).

Scanning
The process of imaging printed pages with a desktop or commercial scanner, using optical character recognition software to convert the scanned pages to text, correcting text misrecognition errors and reformatting as necessary to preserve the structural integrity of the document.

Screen reading software
Software used by persons who are blind or have learning disabilities to verbalize the text contents of the computer screen. Many screen reading programs are highly sophisticated and capable of reading very complex page formats and web pages.

Specialized formats
See proprietary formats.

Speech synthesis software
Software used with a computer's sound card to reproduce near-human sounding speech.

Speech synthesizer
Hardware/software used by speech synthesis software to produce near human sounding speech.

Structural integrity
Structural integrity' means all of the printed instructional material, including, but not limited to, the text of the material, sidebars, the table of contents, chapter headings and subheadings, footnotes, indexes, glossaries, and bibliographies. 'Structural integrity' need not include nontextual elements such as pictures, illustrations, graphs, or charts.

Tables
A text formatting protocol used to arrange information in rows and columns.

Tactile graphics
Graphic images produced as raised images. Such raised images may be produced by a device using heat and heat-sensitive paper. This enables high quality tactile graphics, suitable for blind and visually impaired people, to be made quickly and easily. Some tactile graphics can also be produced using a braille embosser.

Tapes
Refers to audiotapes of books or other materials read aloud by a human reader or by a speech synthesizer.

Textbook format
The format used for producing textbooks in braille. The major difference between braille textbook and braille literary formats in the main body of text is inkprint page indicators. Textbook format has them; literary format doesn't. For textbook format with no running head, text appears on every line.

Title 5
That portion of the *California Code of Regulations* governing the administration of education in the state of California. The regulations of the Board of Governors of the California Community Colleges appear in Division 6 of Title 5.

Transcription
To move the content of a document from one format to another as in transcribing the content of audio tape to text or from print to braille.

Web Pages
Documents formatted in one of several page layout or "mark up" languages including html, dhtml and xml.

Word processing formats
Refers to public and proprietary software systems used for embedding non-ASCII characters into a document for the purpose of formatting the appearance of information on the computer screen. Examples of word processing formats include Microsoft Word and WordPerfect.

Zip files
Zip files are "archives" used for distributing and storing files. Zip files contain one or more files. Usually the files "archived" in a Zip are compressed to save space. Zip files make it easy to group files and make transporting and copying these files faster.

Library Module (4) and Human Resources Module (5) will be

Available September 2001

Module 6: Incentive for Faculty

The Incentive for faculty Module focuses on the means those faculty who, through use or integration of technology in their everyday curriculum, are currently being compensated. The plan includes funding to provide appropriate incentives to faculty members who integrate IT into their campus curricula and share the benefits of their experiences with other faculty members on other campuses. This module attempts to gather information related to the actual use/integration of technology/multimedia in curriculum development that is eventually applied in the classroom. There are several ways that technology is integrated into the curriculum. Faculty may employ web-based instruction, videoconferencing, e-conferencing, Internet research, etc. Compensation o faculty is generally issued monetarily, or by time-off. This module benchmarks current methods of faculty compensation. Please use the table below to determine your college's compensation program for faculty involved in incorporating various methods of technology into their curriculum.

Example:

	F	X	$	+	$	=
Multi-media/Tech. Applications used in curriculum development	**Number of Faculty applying this method as part of instruction**		**Total Amount Compensated (dollars)**		**Total Amount Compensated (time off)**	**Total Compensation Awarded**
Internet Research	5		2,000		12 days ($100/day)$1200	**$3,200.00**

As the Incentive for Faculty Module is being developed, suggestions, recommendations, and feedback from administrative committees and faculty on the most effective and reasonable method to compensate faculty will assist the Chancellor's Office in developing a more appropriate and applicable incentive module.

U.S. Department of Education
Office of Educational Research and Improvement (OERI)
National Library of Education (NLE)
Educational Resources Information Center (ERIC)

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